CLAIMS

What is claimed is:

1. A system, comprising:

memory device;

counter coupled to the memory device, wherein the counter is adapted to monitor memory consumption of the memory device for one or more programs;

a plurality of processors coupled to the counter, wherein one of the plurality of processors within the system is coupled to a garbage collector adapted to free a portion of unused memory; and

wherein executing the garbage collector is triggered based on a value of the counter.

2. The system of claim 1, wherein the value is a programmable threshold value, and wherein when the counter reaches the programmable value, the garbage collector is triggered.

3. The system of claim 2, wherein upon reaching the programmable threshold value, the counter sends an interrupt value to the processor, which executes the garbage collector.

4. The system of claim 2, wherein a software process is regularly polling the counter to check if the predetermined threshold value has been reached, and wherein upon reaching the predetermined threshold value, the garbage collector is triggered.

5. The system of claim 1, wherein the system further comprises a decoder coupled to the counter, wherein upon decoding an instruction requesting memory allocation, the counter is updated with an estimated memory usage value for the instruction.

6. The system of claim 1, wherein the system further comprises a micro-sequence replacing an instruction requesting memory allocation, wherein upon executing an instruction from the micro-sequence requesting memory allocation, the counter is updated with an exact memory usage value for the instruction.

7. The system of claim 6, wherein the counter is updated by a value stored within the memory device.

8. The system of claim 1, wherein a software process is triggered by an instruction that requests memory allocation, and wherein prior to performing or requesting another memory allocation task, the software process increments a counter indicative of the memory consumed.

9. A method, comprising:

monitoring memory consumption of a memory device for one or more programs;

triggering a garbage collector to free a portion of the memory upon surpassing a threshold value; and

updating a memory usage counter after retrieving a portion of the memory.

10. The method of claim 10, wherein the method further comprises decoding an instruction requesting memory allocation.

11. The method of claim 11, wherein the instruction is a standard Java instruction, and wherein the counter is updated with an estimated memory usage value for the instruction.

12. The method of claim 11, wherein the instruction belongs to a micro-sequence, and wherein the counter is update with an exact memory usage value for the instruction.

13. The method of claim 10, wherein the step of triggering the garbage collector further comprises periodic monitoring of the memory usage counter.

14. The method of claim 10, where the step of triggering the garbage collector comprises receiving a request from memory usage counter when the step of monitoring the memory consumption reaches a programmable threshold value.

15. A system, comprising:

processor coupled to a garbage collector adapted to free unused memory resources for one or more programs;

counter coupled to the processor, wherein the counter is adapted to monitor memory consumption for the one or more programs; and

wherein upon surpassing a threshold value, the counter triggers the garbage collector.

16. The system of claim 15, wherein the system further comprises a decoder coupled to the counter, and wherein the decoder provides information to update the counter.

17. The system of claim 16, wherein the decoder decodes a standard Java instruction requesting memory allocation.

18. The system of claim 17, wherein the counter is updated with an approximate memory usage value.

19. The system of claim 16, wherein the decoder decodes an instruction from a micro-sequence requesting memory allocation.

20. The system of claim 19 and wherein the counter is updated with an exact memory usage value.

21. The system of claim 15, wherein the counter is monitored periodically by a software process, and upon reaching the threshold value, the software process triggers the garbage collector.

22. The system of claim 15, wherein the processor is a main processor.

23. The system of claim 22, wherein the system further comprises a co-processor coupled to the main processor, wherein the co-processor is adapted to provide an interrupt signal to the main processor when the counter surpasses the threshold value.

24. The system of claim 23, wherein the main processor initiates the garbage collector upon receipt of the interrupt signal.

25. The system of claim 15, wherein the system is a cellular telephone.